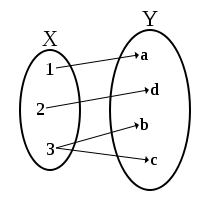
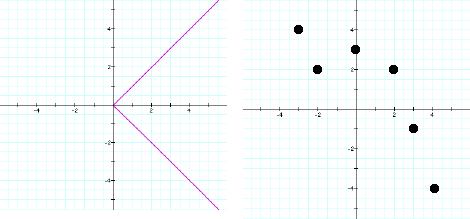
**FUNCTIONS Unit Review – Algebra 2BE**

**Idea 1 – Are the following functions?**

1. 2. 3. 4. 5.

|  |  |
| --- | --- |
| x | y |
| -2 | 2 |
| 0 | 6 |
| 0 | 4 |
| 5 | 7 |



|  |  |
| --- | --- |
| x | y |
| -1 | 6 |
| 0 | 6 |
| 1 | 6 |
| 2 | 6 |

6.

7. Joe-Bob writes the set of ordered pairs . The set represents a function. Joe-Bob claims that he can add any point to the set and have the set still represent a function. Which of the following points can be used to show that Joe-Bob’s claim is incorrect?

A.  B.  C.  D. 

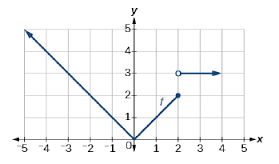
**Idea 2 –Evaluating Functions**

Use for #1-2:

1. Find 2. Find  3. If , find .

4. If the function *f* is defined by  then 

5. If  and , find 

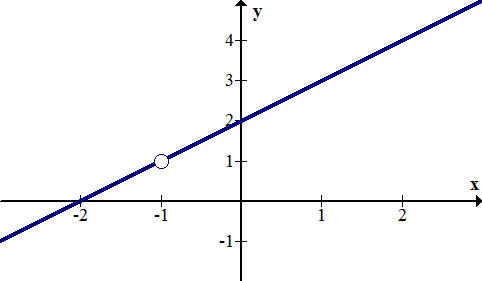
Based on the graph to the right,

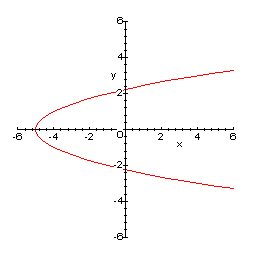
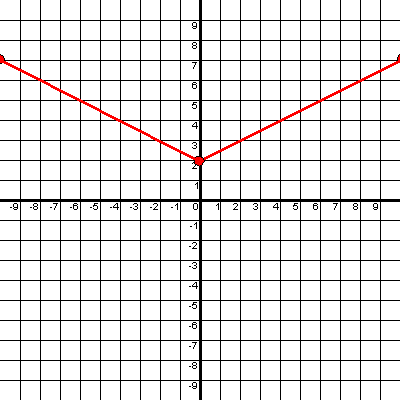
6. Find f(-2)

7. Find f(2)

8. Find f(5)

**Idea 3 - Give the domain and range for each of the following functions or relations:**

1. 2. 3.

4. 

5. Which of the following has the range of “all real numbers”?

A.  B.  C.  D. All of these

6. It takes the people at the carwash 4 minutes to wash each car. The number of minutes they spend washing is a function of the number of cars that come in to the carwash. If 5 cars come to the carwash, give the domain and range of the situation.

For #7-10, give the domain and range of each:

7.  8.  9.  10. 

**Idea 4 – Transformations of Functions**

1. What does the “a” value of the equation change or control about the graph?

2. What does the “b” value of the equation change or control about the graph?

3. What does the “c” value of the equation change or control about the graph?

4. What does the “d” value of the equation change or control about the graph?

Describe the transformations of each parent function.

5.  6.  7.  8. 

9. Sketch three possible graphs of for some real number c.

10. When is the claim “the graph of  is located  units to the right of the graph of f(x)” true? When is it false?

**Idea 5 – Even, Odd, or Neither**

1. What do you plug in to test whether a function is even, odd, or nether?
2. Functions that are even have symmetry about the \_\_\_\_\_\_ axis.
3. Functions that are odd have symmetry about the \_\_\_\_\_\_ axis.

Tell whether each function is even, odd, or neither.

4.  5.  6.  7. 

**Idea 6 – Function Families**

**Match up the function families. (There is one capital letter and a double lower case letter for each family name). Give the domain and range for each.**

1. Exponential

2. Cubic

3. Linear

4. Sine (Trigonometric)

5. Absolute value

6. Inverse

7. Cube Root

8. Logarithmic

9. Quadratic

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

A. 

B. 

C. 

D. 

E. 

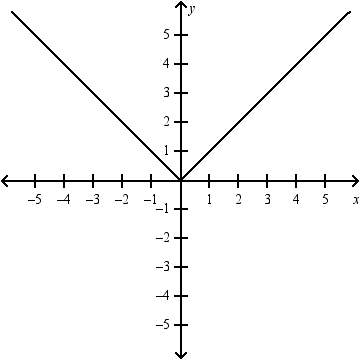
F. 

G. 

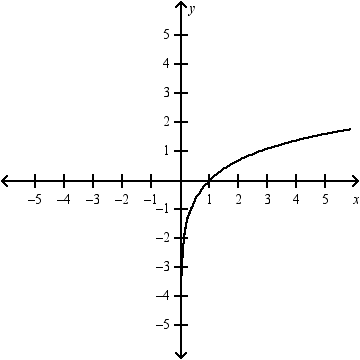
H. 

I. 

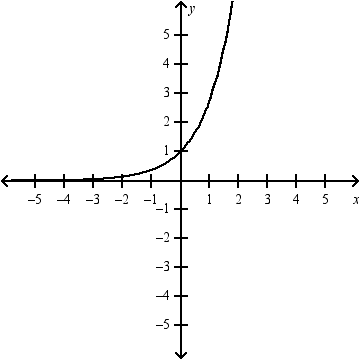
aa.



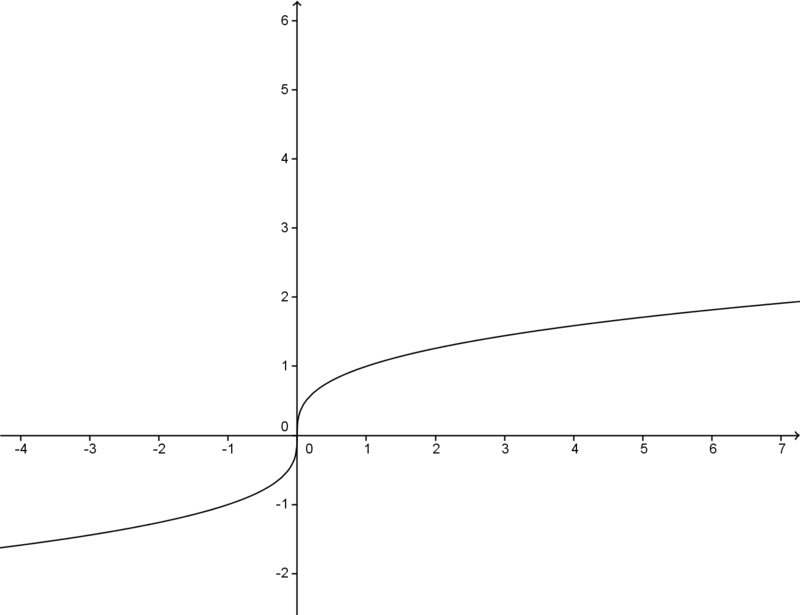
bb.



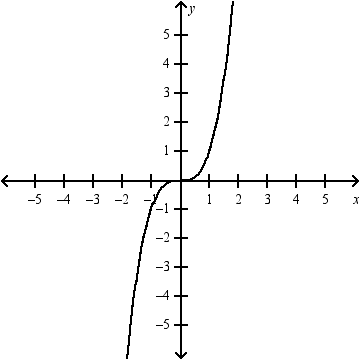
cc.



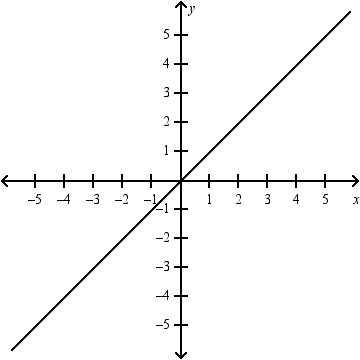
dd



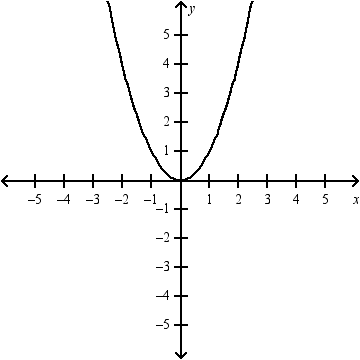
ee.



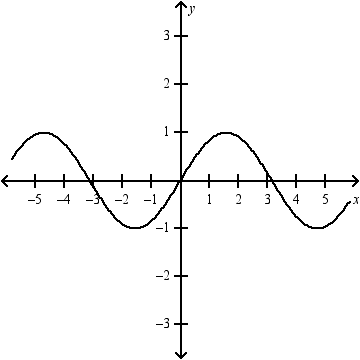
ff.



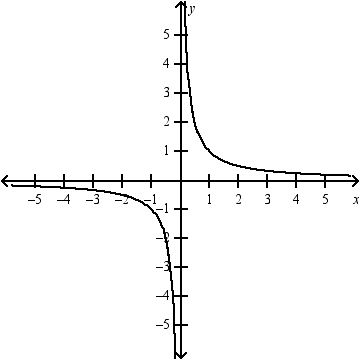
gg.



hh.



ii.



**Idea 7 – Combine functions through the 4 operations.**

1. Find . Remember that means .

2. Find . Remember that means .

3. Find . Remember that means .

4. Find  Remember that means .

5. Find . 6. Find . 7. Find 

8. If , give possible functions for  and .

**Idea 8 – Composition of Functions**

1. Find . Remember is also written as .

2. Find . Remember is also written as .

3. Find .

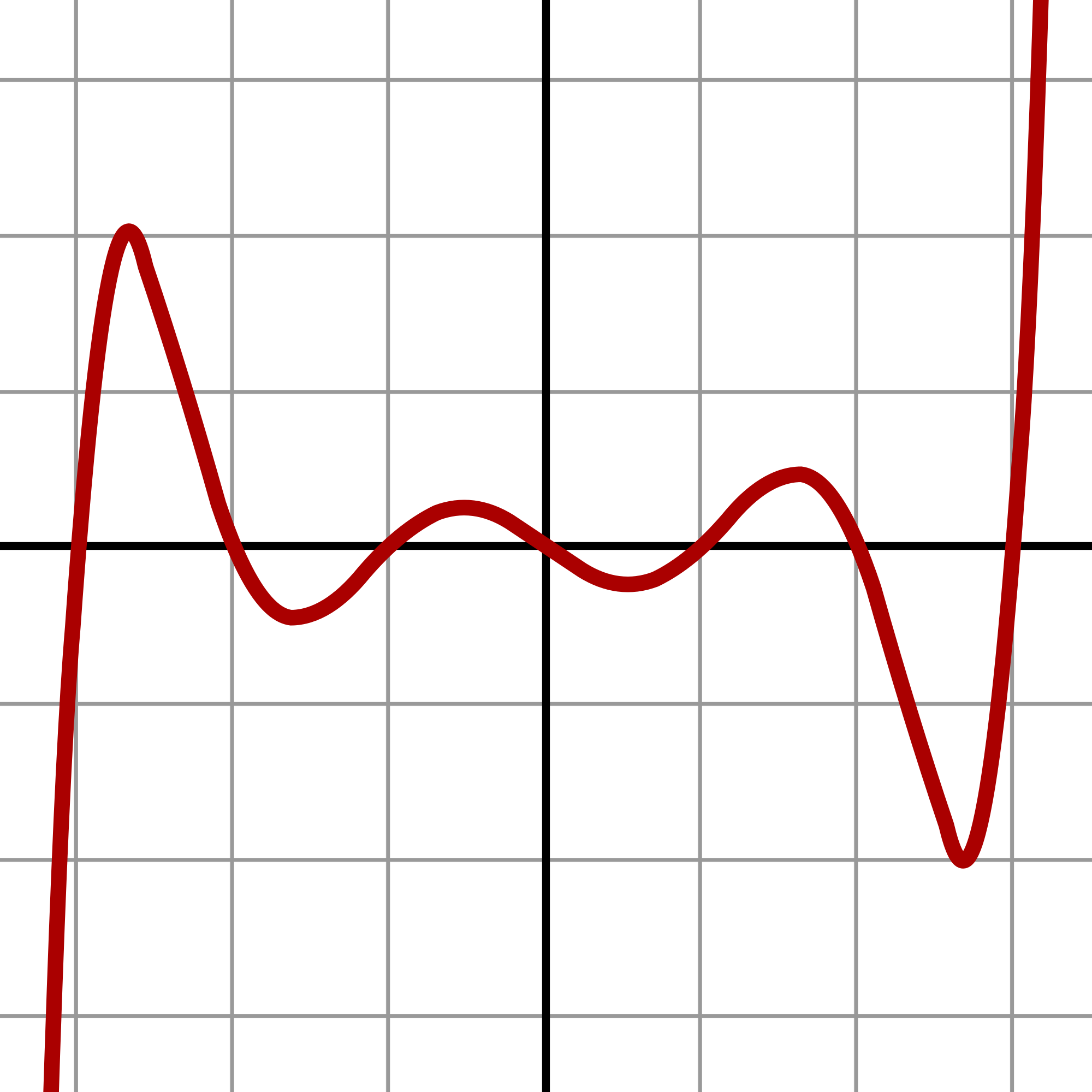
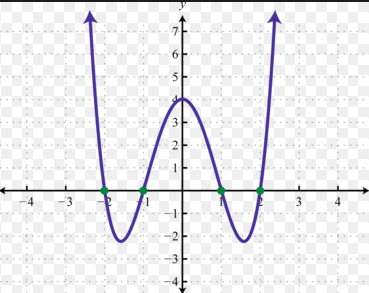
4. Find .

5. If , , , and , find  and 

**Idea 9 – Solutions of Functions**

For #1-3:

1. Give the solutions for each of the following based on the graph.
2. Give the possible degree of the polynomial function based on the graph
3. Write a possible equation for the polynomial function based on the graph.

******

For #4-6, give the zeros for each polynomial function

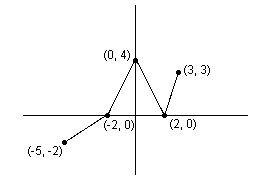
4.  5.  6. 

Sketch what the graph may look like based on the equation. Place the zeros carefully.

7.  8.  9. 

**Idea 10 – Inverse Functions**

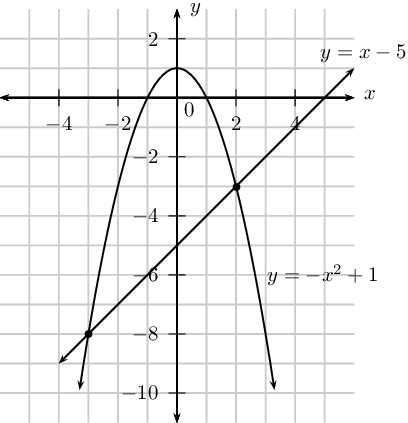
Find the inverse of each function

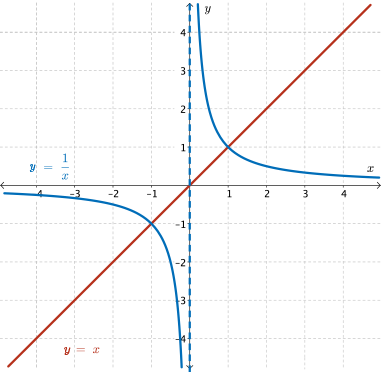
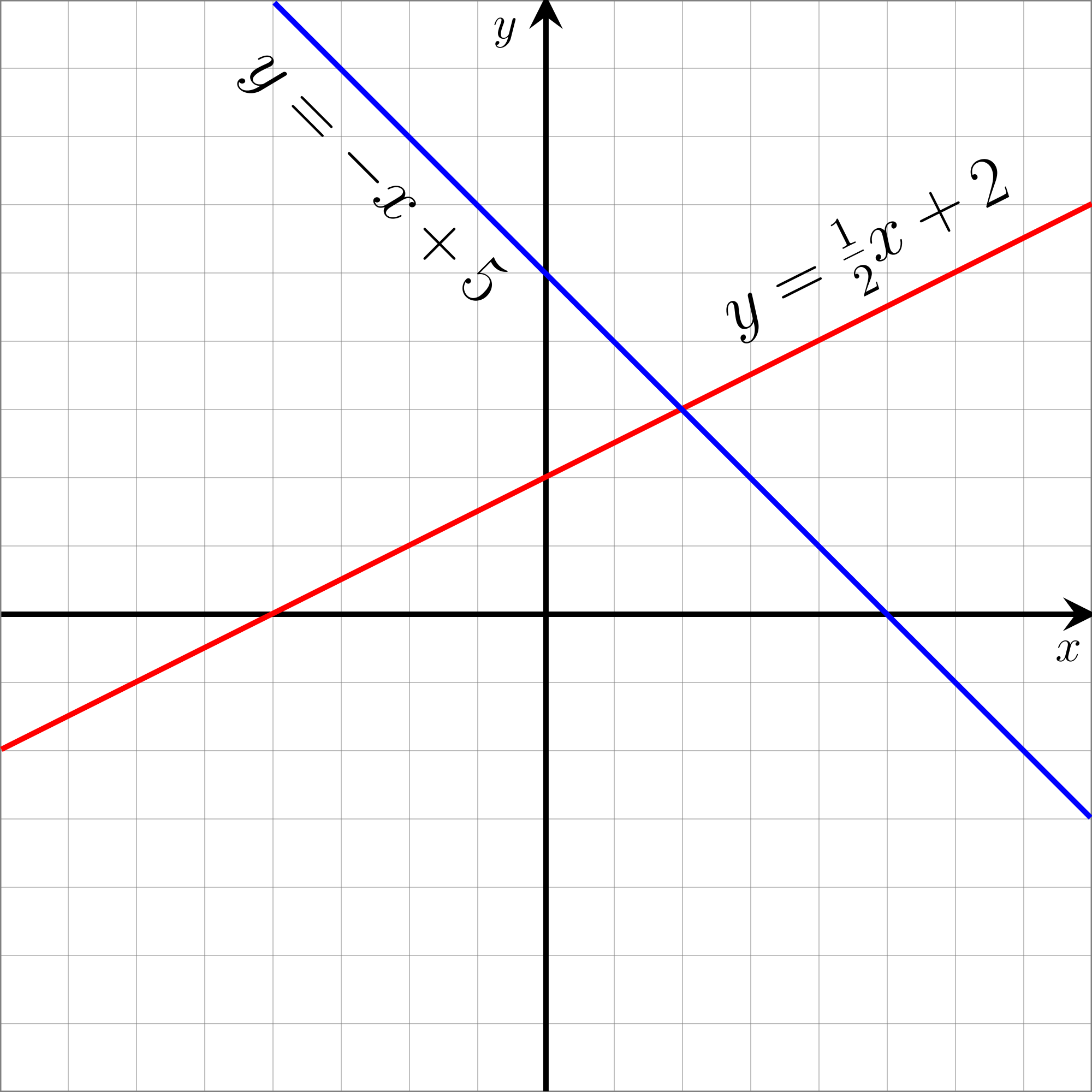
1.  2.  3. 

4. Graph the inverse of

**Idea 11 – Solutions of Systems**

Give the solution(s) to each system.



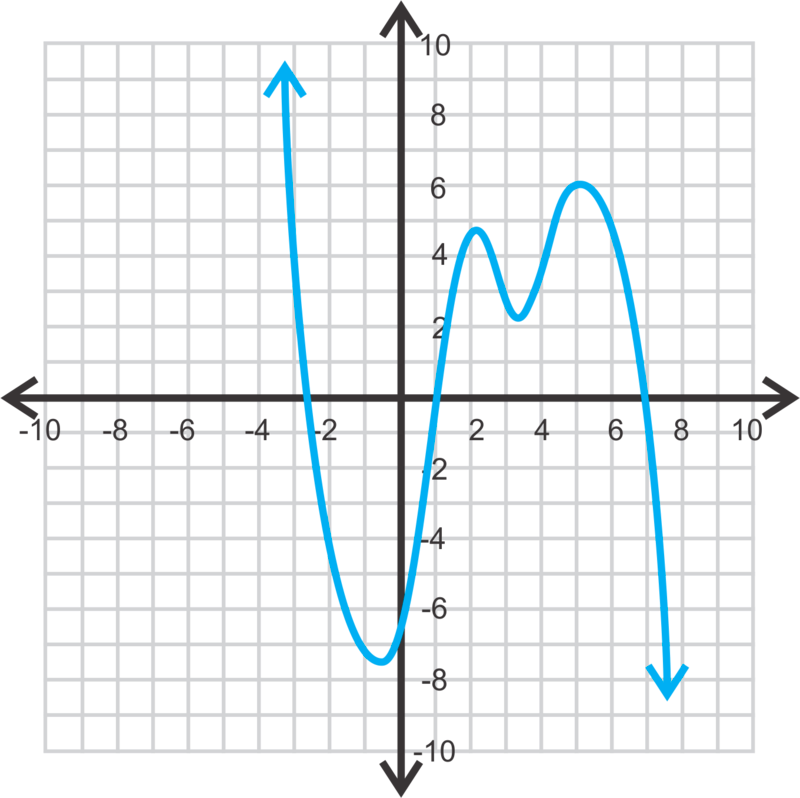
******

|  |  |  |
| --- | --- | --- |
| x | f(x) | g(x) |
| -1 | 10 | -8 |
| 0 | -2 | -2 |
| 1 | -4 | 4 |
| 2 | 10 | 10 |
| 3 | 46 | 16 |

4.A table of values was created for the following system of equations:

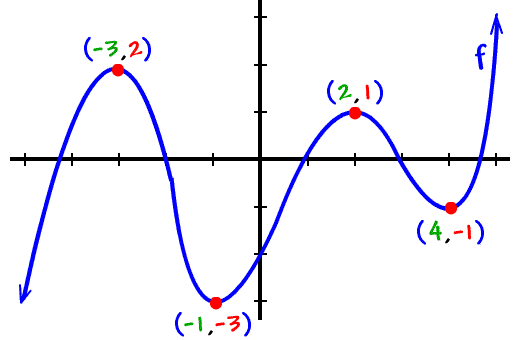
 and 

Using the table of values, give two solutions to the system.

**Idea 12 – Interpreting Graph Features**

1. Use the function graphed to the right:

1. If k is a constant such that the equation  has five real solutions, give two possible values for k.
2. A. If k is a constant such that the equation  has three real solutions, give two possible values for k.
3. A. If k is a constant such that the equation has one real solution, give two possible values for k.



2. Use the graph above:

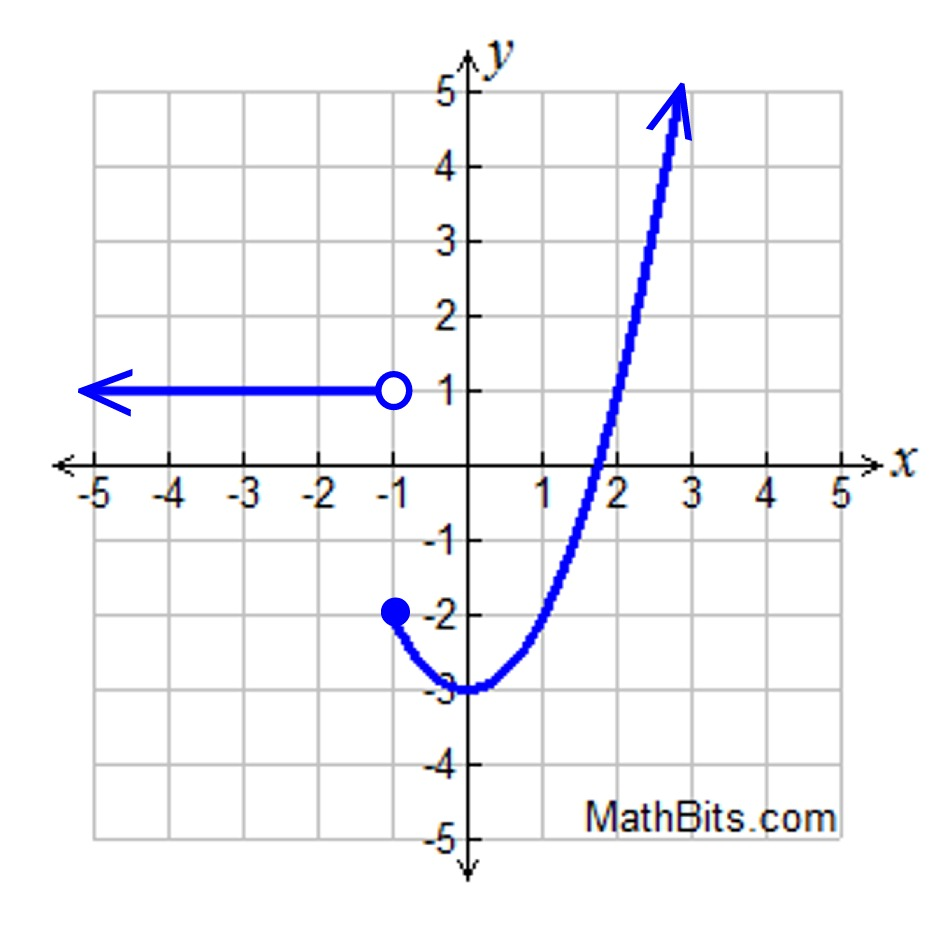
1. Give the intervals on which the function is increasing.
2. Give the intervals on which the function is decreasing.
3. List the local (or relative) maximums.
4. List the local (or relative) minimums.
5. Find f(0)

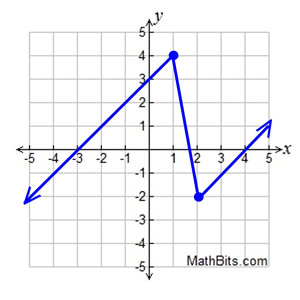
3. Draw a graph that is increasing on the interval .

**Idea 13 – Piecewise Functions**

Graph the following piecewise functions

1.  2. 

Write the equations for the following piecewise functions

******3. 4.